

SOME BEES COLLECTED IN QUEENSLAND.

BY T. D. A. COCKERELL.

THE present paper is a report on a collection of bees recently sent from the Queensland Museum. All were collected by Mr. H. Haeker in Queensland, with the exception of a single *Halictus* from New South Wales. Mr. Haeker's industry is revealing a remarkable bee-fauna in the region about Brisbane. A rather surprising number of the Mackay species, known from the collections of Rowland and Gilbert Turner, go south to Brisbane; while several of the New South Wales species also occur, no doubt near the northern limit of this range. There are, in addition, many species discovered by Mr. Haeker, and not at present known from other parts of the country. The numbers cited in the list are those of the Queensland Museum.

COLLETIDÆ.

Paracolletes hackeri n. sp. Brisbane, Sept. 20, 1916. (209.)

♀. Length 10 mm.; head, thorax, and legs black; abdomen with first three segments dark steel blue, the others black; pubescence greyish white, mixed with black on mesothorax, black on scutellum, and caudal fimbria black; under side of thorax, abdomen, and bases of legs with pure white hair; clypeus shining, distinctly punctured; lower part of supra-clypeal area smooth and polished; antennæ dark, the flagellum reddened apically; mesothorax and scutellum shining, sparsely punctured; basal part of area of metathorax dull and granular, no transverse carina on metathorax; tegulae black; wings slightly dusky, stigma and nervures black; first r.n. joining middle of second s.m., b.n. meeting t.m.; hind tibial scopa white; abdomen smooth, with weak punctures.

Closely allied to *P. providus* Smith, but differing in the sculpture of the abdomen. All my specimens of *P. providus* are from Victoria, where it seems to be common.

Paracolletes helichrysi n. sp. Tambourine Mtn., at flowers of *Helichrysum bracteatum*, Oct. 27, 1912. (205.)

♀. Length 7 mm.; robust, black, the hind margins of abdominal segments broadly fusco-testaceous; pubescence greyish white, on dorsum of thorax pale ochreous, with some dark fuscous hair on disc of scutellum and mesothorax; clypeus shining, with large, irregular punctures; face broad; tongue as in *Colletes*; flagellum short, dull ferruginous beneath, except basally; mesothorax and scutellum shiny, feebly punctured; area of metathorax triangular, smooth and shining; tegulae black; wings hyaline, faintly dusky at apex, stigma and nervures dark fuscous; b.n. arched, meeting t.m., second s.m. narrow, receiving r.n. about middle; legs with greyish-white

hair, orange on inner side of tarsi; hind tibial scopa loose and strongly plumose; abdomen dull, appearing finely granular under a lens; apical fimbria more or less brownish.

Rather like *P. halictiformis* Ckll. and *P. sigillatus* Ckll., but quite distinct.

PROSOPIDIDÆ.

Prosopis constricta Ckll. Brisbane, Aug. 2, 1916. (171, 188.)

The mark between the antennæ is present in one specimen, absent in the other.

Prosopis cyaneomicans Ckll. var. **nigrescens** n. var. Bribe Island, Jan. 1917. (172.)

Flagellum black, obscurely brown beneath; stigma and nervures brownish black.

Prosopis disjuncta Ckll. Caloundra, Jan. 20, 1916. (174.)

Prosopis chromatica Ckll. Brisbane, Sept. 10 and 16, 1914 and 1915, the Sept. 16 one at flowers of *Melaleuca preissiana*. (175, 173.)

Prosopis nubilosella subsp. **mediosticta** Ckll. Stradbroke Island, at flowers of grey gum, Dec. 3, 1912. (179.)

Prosopis eugeniella Ckll. Brisbane, Sept. 10, 1915. (184.)

Prosopis eburniella Ckll. Brisbane, Oct. 3 and Feb. 8, 1916. (181, 185.)

Prosopis amiculiformis Ckll. Brisbane, Sept. 12, 1916. (180.)

Prosopis amicula Smith. Brisbane, Feb. 8, 1916. (187.)

Prosopis serotinella Ckll. Brisbane, Oct. 3, 1916, ♀ (177), Sept. 26, 1916, ♂ (176).

The male is new; it differs from the female by the bright lemon-yellow face, labrum, and mandibles, the supraclypeal mark semicircular, the lateral marks broadly truncate just below antennæ; flagellum long, obscure brown beneath; anterior and middle knees, tibiæ (except a dark spot) and tarsi yellow; hind tibiæ pale yellow at base; hind basitarsi white at extreme base; marginal cell only feebly infuscated, darkest just beyond stigma, and cloud below marginal cell also faint. The abdomen is flattish, venter not modified.

Prosopis aurifera n. sp. Stradbroke Island, Sept. 17, 1915. (178.)

♀. Length about 8 mm., with rather short abdomen; black, with chrome-yellow markings, as follows: Clypeus (except lower margin, and a narrow band down each side), broad supraclypeal mark (truncate above and with oblique sides), broad lateral marks extending a short distance above antennæ, stripe on cheeks (only the lower end touching orbit), upper border of prothorax (not reaching tubercles), tubercles, and basal two-fifths of hind tibiæ. Mandibles ordinary; face broad; flagellum dull ferruginous beneath except basally; anterior tibiæ red in front except apically; front and mesothorax dull, but punctures more distinct on front than on thorax; area of metathorax dullish; tegulae dark fuscous; wings slightly dusky; nervures and stigma piceous black, first r.m. meeting first t.c.; abdomen dorsally shiny, without evident hair; venter not modified.

A very distinct species, superficially resembling *Gnathoprosopis bituberculata* Sm.

The following key will be convenient for the separation of the above species. I include also two other forms, described below.

- | | | | | | | | | | | |
|---|----|----|----|----|----|----|----|----|-------------------------------------|-----|
| Abdomen with some red | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1. |
| Abdomen without red | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2. |
| 1. The red a band on apex of first segment and base of second | .. | .. | | | | | | | <i>Euryglossa hypoleuca</i> . | |
| The red including more than a segment | .. | .. | .. | .. | .. | .. | .. | .. | <i>Prosopis constricta</i> . | |
| 2. Abdomen at least partly brilliant blue | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3. |
| Abdomen black | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5. |
| 3. Thorax and face black | .. | .. | .. | .. | .. | .. | .. | .. | <i>P. cyaneomicans nigrescens</i> . | |
| Thorax blue | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4. |
| 4. Male ; tubercles light yellow, not continuous with yellow of prothorax | .. | | | | | | | | <i>P. disjuncta</i> . | |
| Female ; tubercles bright chrome, continuous with yellow margin of prothorax, which however is very broadly interrupted in middle | .. | .. | .. | .. | .. | .. | .. | .. | <i>P. chromatica</i> . | |
| 5. Marginal cell deep fuscous | .. | .. | .. | .. | .. | .. | .. | .. | <i>P. scrotinella</i> ♀. | |
| Marginal cell not thus fuscous | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6. |
| 6. Scutellum and postscutellum bright chrome yellow | .. | .. | | | | | | | <i>P. nubilosella mediosticta</i> . | |
| Scutellum and postscutellum black | .. | .. | .. | .. | .. | .. | .. | .. | .. | 7. |
| 7. Axillæ yellow | .. | .. | .. | .. | .. | .. | .. | .. | <i>Palæorhiza melliceps</i> . | |
| Axillæ black | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8. |
| 8. Clypeus black ; lateral marks cream colour ; very small | .. | .. | | | | | | | <i>Prosopis eugeniella</i> . | |
| Clypeus not black | .. | .. | .. | .. | .. | .. | .. | .. | .. | 9. |
| 9. A black stripe between clypeus and lateral marks ; larger species | .. | .. | | | | | | | <i>P. aurifera</i> . | |
| No such black stripes ; smaller species | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10. |
| 10. Tubercles white | .. | .. | .. | .. | .. | .. | .. | .. | <i>P. eburniella</i> . | |
| Tubercles yellow | .. | .. | .. | .. | .. | .. | .. | .. | .. | 11. |
| 11. Yellow of prothorax interrupted in middle | .. | .. | .. | .. | .. | .. | .. | .. | <i>P. amiculiformis</i> . | |
| Yellow of prothorax not interrupted | .. | .. | .. | .. | .. | .. | .. | .. | .. | 12. |
| 12. Face narrow ; legs nearly all yellow | .. | .. | .. | .. | .. | .. | .. | .. | <i>P. amicula</i> . | |
| Face broad ; legs with less yellow | .. | .. | .. | .. | .. | .. | .. | .. | <i>P. scrotinella</i> ♂. | |

Prosopis bidentata Smith.

This species was described by F. Smith in 1853 (Cat. Hym. B.M., Pt. i. p. 28) from a male in the J. S. Baly collection, the locality being given as "New Holland." It is not represented in the British Museum, and I do not know the present location of the type. Mr. Hacker has collected on Stradbroke Island, September 17th, 1915, a male which he considered to belong to *P. aurifera* Ckll. It is, however, too large for *aurifera*, and is, I am sure, a distinct species. The front is not distinctly punctate as in *aurifera*, the mesothorax is duller, and the tegulæ are mainly reddish. It is, I am sure, the long-lost *P. bidentata*, with the description of which it agrees very well. The first recurrent nervure joins the second submarginal cell near its base, as it should not do in *bidentata*; but this discrepancy may be due to variation, or even to an error in the original account. The species is a very striking one; the long ventral abdominal teeth or spines are at the end of a long convex ridge, and both ridge and teeth are polished and shining. The mandibles do not accord with those of *Gnathoprosopis*; the orange face is dull, not oily and polished, and the scape is not dilated. In other respects, however, the species seems close to *Gnathoprosopis*, and it is perhaps doubtful whether that genus should be maintained.

Palæorhiza melliceps n. sp. Brisbane, June 13, 1912. (182.)

♀. Length somewhat over 8 mm.; slender, with unusually long and narrow abdomen; black; head mainly chrome yellow, but base beneath, vertex, and front except sides black; the long clypeus and supra-clypeal area are stained with red, and the clypeus has a broad dusky shade on each side; head oblong, the face relatively long and narrow; antennæ ferruginous, the flagellum blackish above; mesothorax and scutellum dullish, but area of metathorax polished; upper border of prothorax (not reaching tubercles), tubercles, large patch behind them, broad bands along posterior halves of sides of mesothorax, and axillæ, all bright chrome yellow; tegulæ dark reddish; wings dusky, stigma and nervures black; second submarginal cell broad, receiving recurrent nervures about equally far from base and apex; b.n. falling short of t.m.; legs black, anterior knees and tibiæ in front red, anterior femora and tibiæ mainly yellow behind; abdomen strongly constricted at apex of first segment.

A very distinct species, which may I think be safely referred to *Palæorhiza*, though the male is unknown. The colour and markings are unique.

Euryglossa hypoleuca n. sp. Brisbane, Feb. 15, 1916. (186.)

♂. Length about 5 mm.; robust, black, the hind margins of abdominal segments broadly testaceous, the first segment ferruginous apically; head and thorax dull, the sculpture excessively fine, the sides of the front striate; face broad, ivory colour below antennæ, the lateral marks with linear extension halfway up sides of front, clypeus with a small pale-fuscous spot on each side; labrum and mandibles white, the latter with cutting edge red; a small white spot behind eyes at base; scape pale yellowish in front, flagellum clear ferruginous beneath; postscutellum with conspicuous white hair; upper border of prothorax and tubercles white, the band slightly interrupted in middle, and also failing to reach tubercles; tegulæ ferruginous; wings hyaline, the veins fuscous, first r.n. joining base of second s.m.; knees, and anterior tibiæ except a small spot, pale reddish; mid and hind tibiæ white, suffused with reddish basally; basitarsi white; abdomen dullish, very finely pruinose.

Very close to *Euryglossa albocuneata* Ckll., of which only the female is known. In *E. albocuneata* the second r.n. joins second s.m. well before the end, so it seems probable that *hypoleuca* is not the male of *albocuneata*, since it differs in this feature of the venation. There is a possibility, however, that the venation varies, and the two are sexes of a single species. These insects are intermediate between *Prosopis* and *Euryglossa* and should perhaps be separated generically from both.

Euryglossa semicastanea n. sp. Brisbane, Feb. 15, 1916. (183.)

♀. Length about 6 mm.; robust, head and thorax black, abdomen chestnut red; labrum, mandibles (except apex), lower part of clypeus suffusedly, and narrow lateral stripes extending along orbits to a little above antennæ, deep red; antennæ chestnut red above and below; mesothorax dull, extremely finely punctured; scutellum with larger, more distinct punctures; area of metathorax large, entirely dull; tegulæ black; wings slightly dusky; stigma large but rather short, amber colour; b.n. meeting t.m., second s.m. broad; knees, tibiæ, and tarsi deep red; abdomen without bands.

Quite distinct from *E. semirufa* Ckll., *E. edwardsii*, Ckll., &c.

Euryglossa neglectula Ckll. var. *mica* n.v. Brisbane, Oct. 10, 1916. (208.)

♂. Length nearly 4.5 mm.; shining black; the abdomen slightly brownish black; face broad, entirely black; flagellum obscurely reddish beneath; head and thorax moderately hairy; area of metathorax polished; tegulae piceous; wings slightly dusky, nervures and stigma sepia colour; second s.m. broad; b.n. falling a considerable distance short of t.m.; legs black, anterior tibiae obscurely reddish in front, tarsi reddish; abdomen broad, not banded.

I formerly called this form var. *a*. It differs from true *neglectula* by the narrow face, slightly dusky wings, and abdomen not at all purplish. It is easily known from *E. inconspicua* Ckll. by the dark tibiae. It is quite possibly a distinct species.

Pachyprosopis indicans n.sp. Brisbane, Feb. 8, 1916. (189.)

♂. Length about 5 mm.; robust, with a broad face; black, with face below antennae bright chrome yellow, the lateral marks extending a short distance upward with the outline of a closed hand with index finger pointed; labrum, broad base of mandibles, and mark below eyes also yellow; scape rather broad, yellow in front and behind, slightly suffused with reddish; flagellum black, ferruginous beneath, except at base and apex; front dullish, extremely finely punctured; thorax without yellow markings, extremely finely punctured; tegulae black; wings hyaline, stigma and nervures black; first r.n. joining extreme apex of first s.m.; legs reddish yellow, anterior femora with a large black patch behind; abdomen broad, with dullish surface.

Closely related to *P. angophora* Ckll., but easily distinguished by the yellow face. By the yellow legs it resembles *P. aurantipes* Ckll., but it is otherwise quite different.

Euryglossella globuliceps n.sp. Brisbane, Feb. 8, 1916. (213.)

♀. Length less than 4 mm., shining black, the abdomen very faintly purplish; flagellum short, obscurely reddish beneath; anterior tibiae very obscurely reddish in front; wings hyaline; stigma long, dusky amber; an incomplete second submarginal cell present; head large, with broad cheeks, front polished.

The venation is like that of *E. atomaria* Ckll., which is easily separated from *E. globuliceps* by the yellow femora, &c.

ANDRENIDÆ.

Nomia halictella Ckll. Brisbane, Feb. 8, 1916. ♂. (191.)

Halictus semipolitus Ckll. Brisbane, Sept. 20, 1916. (192.)

Halictus urbanus Smith. Brisbane, Sept. 10, 1915. (203.)

Halictus oxoniellus Ckll. Bribie Island, Nov. 2, 1913. (194.)

A variety or race with green mesothorax.

Halictus eyrei Ckll. Brisbane, Feb. 15, 1916. (200.)

Halictus vitripennis Smith. Brisbane, Sept. 10, 1915, and Feb. 8, 1916. (196, 198.)

Halictus erythrurus Ckll. Oxley, Brisbane, Sept. 17, 1914. (204.)

Halictus erythrurus var. **atrocyaneus** n.v. Brisbane, Feb. 8, 1916. (199.)

♀. Very small, about 4 mm. long; mesothorax very dark blue. Very distinct in appearance, but I believe only a variety. The thorax, excepting the mesothorax, is black; abdomen chestnut red, the first segment black except apically; mandibles red; clypeus shining, with scattered large punctures; flagellum dark red beneath; mesothorax dullish, extremely finely punctured; area of metathorax rugose, with a broad shining rim; tegulae dark reddish; wings hyaline, stigma testaceous, nervures pallid; legs black, anterior tibiae obscurely reddish in front; abdomen shining.

Halictus clarigaster n.sp. Caloundra, Jan. 20, 1916. (197.)

♀. Length about 6.5 mm.; head and thorax black, abdomen clear bright ferruginous, slightly dusky apically; labrum and mandibles dark red; head broad, clypeus shining and sparsely punctured; front dull, except at extreme sides; supraclypeal area convex, prominent; flagellum clear ferruginous beneath, except first joint and extreme apex; hair of head and thorax dull white; mesothorax dullish, very finely and closely punctured; area of metathorax semilunar, glistening, with fine mainly longitudinal rugae; tegulae light ferruginous; wings moderately dusky; stigma and nervures dusky reddish, outer r.n. and t.e. weakened; legs black with all the knees, anterior tibiae in front, and the other tibiae on inner side, ferruginous; hind spur with a few strong spines; abdomen without bands or patches of hair, but delicately white-pruinose from fine hair. Quite distinct from the similar *H. ewarti* Ckll.

Halictus eboracensis n.sp. Ebor, N.S.W., Dec. 30, 1915. (A. J. Turner.) (201.)

♀. Length about 10 mm.; black, the bases of abdominal segments 3 and 4 with very broad bands of pale greyish tomentum, and the base of second segment with a cuneiform patch of the same on each side; hind spur with a stout tooth toward base. Closely allied to *H. seductus* Ckll., for which it would be taken on casual examination, but the mesothorax is not dull anteriorly, and the plications at base of metathorax are not so fine. The metathoracic plications resemble those of *H. circumdatus* Ckll., but otherwise the species is quite distinct.

Halictus speculellus n.sp. Brisbane, Feb. 15, 1916. (193.)

♀. Length about 5 mm.; black, with the labrum and mandibles (except base) dull red; flagellum ferruginous beneath; tegulae clear rufo-testaceous; tarsi rather obscure ferruginous; wings dusky, stigma dark reddish brown; clypeus shining, sparsely punctured; front dull, except at sides; area of metathorax with very fine plicae, the broad rim dullish; abdomen broad, thinly hairy, hind margins of segments brownish. Mesothorax polished, the disc without punctures, except a few along the middle line. Very like *H. repertulus* Ckll. (male), but not its female, as *repertulus* has a distinctly punctured mesothorax. Also allied to *H. Sturti* Ckll., but smaller, with more dusky wings, and different metathorax.

Halictus brisbanensis n.sp. Brisbane, Sept. 17, 1914. (195.)

♀. Length 5 mm. or a little over; head and thorax black, with the mesothorax dull blue-green; abdomen shining chestnut red, the hind margins of first three segments

with broad black bands, not reaching extreme sides ; labrum black ; mandibles clear red, with the apex dark ; scape with a red spot at extreme base ; flagellum obscure reddish beneath, except at base ; mesothorax appearing granular, median groove distinct ; area of metathorax with very fine plicæ ; tegulæ bright rufo-testaceous ; wings slightly dusky. Stigma large and dark ; anterior knees, tibiæ, and tarsi light ferruginous ; middle and hind knees, middle tibiæ in front, hind tibiæ at base and apex, and middle and hind tarsi, rather red ; sides of apical part of abdomen with long hairs.

♀. var. **a.** Brisbane, Sept. 10, 1915. (202.)

Abdomen reddish black, the broad base and sides of second segment, extreme sides of third, and fourth except middle, red.

♀. var. **b.** Brisbane, Sept. 1, 1914, at flowers of *Leptospermum*. (206.)

Mesothorax yellowish green, the median sulcus scarcely developed ; abdomen even darker than in var. **a.**

Related to *H. sphecodoides* Smith, of which it may be a race ; but it differs by the darker abdomen and tarsi.

Parasphcodes bribiensis Ckll. Stradbroke Island, Oct. 20, 1911. (207.)

The specimen has the abdomen contracted, and so looks quite different from the type at first glance. A characteristic feature of the species is the pair of elevated bosses on each of the first two abdominal segments.

Parasphcodes insculptus n. sp. Tambourine Mtn., Dec. 28, 1911. (190.)

♀. Length 8 mm. or a little more ; black, with dusky wings ; anterior tibiæ reddish in front, tarsi reddened apically ; mandibles red subapically ; clypeus polished and shining, with sparse small punctures ; supraelypeal area large and triangular, smooth but glaucous, with scattered minute punctures ; flagellum obscure reddish beneath ; mesothorax smooth and very feebly and remotely punctured, but glaucous ; scutellum like mesothorax ; area of metathorax dull and without sculpture ; tegulæ bright ferruginous, with a large dusky cloud ; stigma and nervures dark reddish fuscous ; abdomen with extremely minute punctures ; a narrow band of white tomentum at extreme base of second and third segments.

Related to *P. plorator* Ckll., but readily distinguished by the dullish abdomen, with closely and very minutely punctured second segment. From *P. atronitens* Ckll. it is known by the dull second abdominal segment, not polished between the punctures, the sculpture of the mesothorax, &c.

The above species of *Halictus* and *Parasphcodes* may be separated by the following table :—

Mesothorax black	..	..	..	..	..	..	..	..	..	..	..	1.
Mesothorax green or blue	..	..	..	..	..	..	..	..	..	..	..	6.
1. Abdomen red or reddish	..	..	..	..	..	..	..	..	..	..	..	2.
Abdomen black	..	..	..	..	..	..	..	..	..	..	..	3.
2. Abdomen clear red, rather narrow	..	..	..	..	..	..	..	..	..	..	<i>H. clarigaster.</i>	
Abdomen dusky reddish, very broad	..	..	..	..	..	..	..	..	..	..	<i>P. bribiensis.</i>	

3. Large species, at least 8 mm. long	4.
Small species	5.
4. Area of metathorax strongly ridged or plicate	<i>H. eboracensis</i> .
Area of metathorax not ridged	<i>P. insculptus</i> .
5. Mesothorax very shiny; hind tarsi ferruginous	<i>H. speculellus</i> .
Mesothorax dullish; hind tarsi not red	<i>H. semipolitus</i> .
6. Abdomen entirely shining black	<i>H. urbanus</i> .
Abdomen with more or less red, or all red	7.
7. Stigma dark	8.
Stigma pallid	9.
8. Legs black; area of metathorax shorter	<i>H. oxoniellus</i> .
Legs more or less reddish	<i>H. brisbanensis</i> .
9. Mesothorax obscurely metallic	10.
Mesothorax light green	11.
10. Larger, mesothorax green	<i>H. erythrurus</i> .
Smaller, mesothorax blue	<i>H. erythrurus</i> v. <i>atrocyaneus</i> .
11. Base of abdomen red	<i>H. cyrei</i> .
Base of abdomen green	<i>H. citripennis</i> .

MEGACHILIDÆ.

Lithurgus atratiformis Ckll. Brisbane, Oct. 5, 1915. (210.)

Megachile simpliciformis n.sp. Stradbroke Island, Sept. 15, 1915. (211.)

♀. Length about 11 mm.; like *M. simplex* Smith, but clypeus very densely and finely punctured; vertex more depressed, the head little elevated above the eyes, which are brown; clypeus emarginate in middle of lower edge, with a tuft of orange hair showing in the emargination. Ventral scopa all white.

CERATINIDÆ.

Exoneura ploratula Ckll. Brisbane, Sept. 12, 1916. (215.)

Exoneura aterrima Ckll. Brisbane, Feb. 15, 1916. (219.)

This was described as a variety of *E. botanica* Ckll., but I now think it must be a distinct species. The specimen (219) is a male, and differs from the female by the clypens (except a very small mark on each lateral margin) and labrum entirely white, the anterior tibiæ and the basitarsi black or dark fuscous.

Exoneura melæna n.sp. Caloundra, Jan. 20, 1916. (214.)

♀. Length about 5 mm.; black, similar to *E. aterrima* but differing thus: Face entirely black; wings dilute reddish; a bright ferruginous patch at each side of base of first abdominal segment; tibiæ largely red, but basitarsi dark.

Exoneura gracilis n.sp. Brisbane, Feb. 8, 1916. (212.)

♀. Length about 4.5 mm.; slender, black, shining; face wholly black, labrum clear ferruginous; scape in front and flagellum beneath dull ferruginous; tubercles white; tegulæ hyaline with a white spot; wings hyaline; stigma large, pale reddish,

